

REMARKS

In the Office Action, the Examiner noted that claims 1-9, 12 and 14 are pending in the application and that claims 1-9, 12 and 14 stand rejected. By this response, claims 1 and 14 are amended to correct for informalities pointed out by the Examiner and to more clearly define the invention of the Applicant.

In view of the amendments presented above and the following discussion, the Applicant respectfully submits that none of these claims now pending in the application are anticipated under the provisions of 35 U.S.C. § 102 or rendered obvious under the provisions of 35 U.S.C. § 103. Thus, the Applicant respectfully submits that all of these claims are now in allowable form.

Objections**A. Claims**

The Examiner objected to the Applicant's claim 14 indicating that "step" in line 1 of Claim 14 should be "steps".

In response, the Applicant has amended claim 14 to replace "step" with "steps" as suggested by the Examiner. Having done so, the Applicant respectfully submits that the basis for the Examiner's objection of the Applicant's claims has been removed and requests that the objection be withdrawn.

Rejections**A. 35 U.S.C. § 102**

The Examiner rejected the Applicant's claims 1-7, 9, 12 and 14 under 35 U.S.C. § 102(b) as being anticipated by Kuhn et al. (U.S. Patent No. 5,485,444, hereinafter "Kuhn"). The rejection is respectfully traversed.

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim" (Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1983)) (emphasis added).

The Applicant submits that Kuhn fails to teach, suggest or anticipate each and every element of at least the invention as recited in the Applicant's amended claim 1, which specifically recites:

“Method for analyzing an abnormal region on an optical recording medium, including the steps of:
detecting a change from a normal to an abnormal region;
in response to the detecting step, making a jump perpendicular to the track direction over the abnormal region until a normal region is reached;
obtaining information on the type of abnormal region during the jump;
determining the radial extension of the abnormal region perpendicular to the track direction; and
determining the type of the abnormal region based on the information obtained during the jump.” (emphasis added).

The Applicant respectfully submits that Examiner did not accept the Applicant's arguments provided in responses to previous Office Actions, because it seems that the Examiner did not fully appreciate the specific differences between the Applicant's claimed invention and the disclosure of Kühn. For the correct understanding of the Applicant's invention, the Applicant will summarize the main differences between the Applicant's claimed invention and the disclosure of Kühn.

The Applicant submits that Kühn discloses a finger print detection mechanism for detecting a type of defect of an optical recording medium. A first type of defect is caused by a fingerprint, and if this type of defect is detected, the user is informed (See Kuhn, column 2, lines 38 – 46, column 6, lines 55 – 61) and as a consequence, in case of the first type of defect, namely a fingerprint, the user can remove the defect by cleaning the disc (See Kuhn, column 7, lines 15 - 21). For this purpose, Kühn provides a process and an arrangement for identifying defects and the type thereof from information obtained from an optical information carrier. Basically in Kühn, two methods are described for this purpose:

The first method illustrated in Fig. 2 of Kühn is described in column 6, line 18 – column 7, line 22. In case an interpolation appears, a flag, m, is set indicating that error correction was performed. According to the teachings of Kühn, the presence of the interpolation is derived from the facilities of the playback device signalling the error rate of the optical disc (See Kühn, column 6, lines 30 - 34). The playback device can only signal the error rate if the disc is read continuously. Therefore, for signalling the error rate, the disc has to be read in track direction and an RF signal has to be present. Also the fingerprint region on the disc has to be read in track direction. The Applicant submits that such teachings clearly excludes jumping perpendicular to the track direction over the abnormal region in response to the detecting step as taught and

claimed by the Applicant. Instead, in Kühn, if an error appears, the error rate z is set equal to one. The number of subcode blocks y within one track (one revolution) x is calculated. By increasing the number of subcode blocks y by one, the same sector on the disc in an adjacent track is addressed. In Kühn, it is waited to see whether or not an error rate z appears again in this disc sector (See Kühn, column 6, line 43 – 47). Therefore, on each track, there is a pause in the method disclosed by Kühn to wait for information about the disk sector. A position finding OB on the disc can be performed by calculating the number of subcode blocks per track. That is, there is no teaching or suggestion in Kühn's disclosure for making a jump perpendicular to a track direction within this disc sector.

Kühn further discloses, as recited by the Examiner, that it has become apparent that the reparable cause of error fingerprint is present as a first type of error when more than three error bursts h appear in five neighbouring tracks k . On the other hand, scratches and black dots as a second type of error are identified by the appearance of up to three error bursts h in three neighbouring tracks (See Kühn, column 6, lines 55 - 61). The size of an error burst h relating to a subcode block time corresponds to 4 frames within 96 frames (See Kühn, column 6, line 49 – 51). Therefore, after an error burst h , there are 92 readable frames left. Thus, a person skilled in the art would not consider jumping perpendicular to a track direction and leaving these frames unread. Thus, the disclosure of Kühn teaches away from the invention and claims of the Applicant, which include jumping over the abnormal region perpendicular to a track direction in response to the detecting step, because in Kühn's invention it is necessary to read the remaining 92 frames after an error burst h appeared.

For counting the neighbouring tracks, a jump over the tracks perpendicular to a track direction as assumed by the Examiner is not performed by Kühn, because Kühn explicitly discloses counting the number of subcode blocks. Having identified the number of subcode blocks, which is a unique number in each track, because the length of a track increases from the inner area to the outer area of a disc, it is possible to identify neighbouring tracks in the same disc sector just by incrementing the subcode blocks y per revolution, x by 1, as disclosed in column 6, line 43 – 47. Therefore, in order to count the number of error bursts h and their extent of the neighbouring tracks, it is not necessary for an optical head to jump over the abnormal region perpendicular to the track direction.

In a second method taught in Kühn (See, column 7, lines 23 – 67), at least the fingerprint cause of error is determined from the high frequency signal. For receiving a high frequency signal and detecting its envelope, it is necessary to scan along the track with the optical head. During jumping perpendicular to the track direction, no high frequency signal is present. Therefore, the second embodiment also does not disclose jumping over the abnormal region perpendicular to the track direction as taught and claimed by the Applicant. That is, Kühn teaches using data obtained during scanning along the track, that is to say, in parallel or in line with the track direction. Kühn discloses in column 3, lines 11 - 13 that “the high frequency signal detected from the optical information medium ... can be used to determine at least one cause of error”. Therefore, Kühn proposes to scan along the track, because this is the case where a high frequency signal is present. While making a jump perpendicular to the track direction, no high frequency signal is present. The presence of a high frequency signal is also shown in Fig. 3 of Kühn’s disclosure. As disclosed in column 7, lines 35 - 52, scratches and fingerprints lead to an attenuated high frequency signal, which might be below a given threshold value ($W1$, $W2$), but a high frequency signal is still present.

Therefore, the Applicant submits that scanning along the track is disclosed by Kühn. A jump perpendicular to the track direction as taught and claimed by the Applicant is not disclosed by Kühn. As Kühn obtains a high frequency signal during the whole procedure, Kühn discloses a method which is applied to a rotating disc. Kühn’s solution is only applicable to local defects, whereas the solution according to the Applicant’s invention is especially applicable to discs on which an abnormal region is extended to a whole track or a large fraction of a track. Making a jump perpendicular to the track direction as proposed by the Applicant’s invention has the advantage that a valid track is found soon without scanning the whole invalid tracks as taught in Kühn. Further, Kühn’s teaching is applicable to finger prints. Finger prints or likewise defects are usually spots having approximately the same length and width. Tracking can be maintained during scanning over such a defect in track direction. In addition, making a jump over this kind of defect region perpendicular to the track direction as taught and claimed by the Applicant is disadvantageous in the invention of Kühn, because a track having such a defect contains also readable data and therefore, scanning along the track is necessary to obtain at least the data in the track which are still readable. In case an abnormal region is extended to the whole track, for example a whole track

which is mirrored, tracking can not be maintained. In this case, it is advantageous to jump over the abnormal region perpendicular to the track direction as taught and claimed by the Applicant. However, these kind of abnormal regions are not addressed by Kühn.

In addition, Kühn does not determine the radial extension of the abnormal region perpendicular to a track direction. In fact, Kühn teaches checking if more than three error bursts appear in five neighbouring tracks *k* and assumes a first type of error in this case. If three error bursts are present in three neighbouring tracks *k* a second type of error is assumed (column 6, lines 55 – 61). Kühn makes a decision about the type of abnormal region after checking at most five neighbouring tracks. After having obtained the information about these five tracks, Kühn has acquired enough information for categorizing the abnormal region as belonging to the first type of error or belonging to the second type of error. In making such a decision, the whole radial extension of the abnormal region does not need to be checked. Kühn does not teach or give any hint to checking more than five neighbouring tracks *k*. By checking at most five neighbouring tracks, Kühn checks a radial extension of 8 μm , which is much less than a fingerprint width. Therefore, Kühn explicitly discloses to check a smaller number of tracks than being affected by the abnormal region and therefore, does not determine the radial extension of the abnormal region perpendicular to a track direction as taught and claimed by the Applicant.

Therefore, the Applicant submits that, for at least the reasons recited above, Kuhn fails to teach each and every element of the claimed invention, arranged as in the claim as required for anticipation. As such, the Applicant respectfully submits that the Applicant's amended claim 1 fully satisfies the requirements of 35 U.S.C. § 102 and is patentable thereunder.

Furthermore, dependent claims 2-7, 9, 12 and 14 depend either directly or indirectly from independent claim 1 and recite additional features therefor. As such and for at least the reasons set forth herein, the Applicant submits that dependent claims 2-7, 9, 12 and 14 are also not anticipated by the teachings of Kuhn. Therefore the Applicant submits that dependent claims 2-7, 9, 12 and 14 also fully satisfy the requirements of 35 U.S.C. § 102 and are patentable thereunder.

The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

C. 35 U.S.C. § 103

The Examiner rejected the Applicant's claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Kuhn in view of Mitarai (JP 54048213). The rejection is respectfully traversed.

The Examiner applied Kuhn to the Applicant's claim 8 as applied for the rejection of the Applicant's claim 1. As described above, Kuhn absolutely fails to teach, suggest or anticipate at least the Applicant's claim 1. As such, and at least because Kuhn fails to teach, suggest or anticipate the Applicant's claim 1, the Applicant further submits that Kuhn also fails to teach, suggest or anticipate the Applicant's claim 8, which depends directly from the Applicant's claim 1.

Even further, the Applicant submits that the teachings of Mitarai absolutely fail to bridge the substantial gap between the teachings of Kuhn and the Applicant's invention, at least with respect to the Applicant's claims 1 and 8. That is, the Applicant submits that Mitarai absolutely fails to teach, suggest or anticipate at least a method for analyzing an abnormal region on an optical recording medium including "wherein the step of determining the type of the abnormal region includes **making a jump over the abnormal region perpendicular to the track direction** and obtaining information on the type of abnormal region during the jump" as taught in the Applicant's Specification and claimed by at least the Applicant's claim 1.

In contrast to the invention of the Applicant, Mitarai merely teaches storing the position and the radial extension of an abnormal region on an optical recording medium (i.e., stores the presence or not, quantity, length, position, etc. of the defect areas). However, as previously asserted, the Applicant submits that Mitarai absolutely fails to bridge the substantial gap between the teachings of Kuhn and the invention of the Applicant.

Therefore, the Applicant submits that for at least the reasons recited above the Applicant's independent claim 1 is not rendered obvious by the teachings of Kuhn and Mitarai, alone or in any allowable combination, and, as such, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder. As such and at least because the teachings of Kuhn and Mitarai, alone or in any allowable combination, fail to render obvious the invention of the Applicant's claim 1, the Applicant further submits that dependent claim 8, which depends directly from the Applicant's claim 1, is also not

rendered obvious by the teachings of Kuhn and Mitarai, alone or in any allowable combination, and, as such, fully satisfy the requirements of 35 U.S.C. § 103 and is patentable thereunder.

The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

Conclusion

Thus the Applicant submits that none of the claims, presently in the application, are anticipated under the provisions of 35 U.S.C. § 102 or rendered obvious under the provisions of 35 U.S.C. § 103. Consequently, the Applicant believes that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion, it is respectfully requested that the Examiner telephone the undersigned.

Please charge any unpaid, additional fees to Deposit Account No. 07-0832.

Respectfully submitted,

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